**USBR/Western Customer Funding Program**
**Technical Committee Meeting**
**June 5, 2001**
**9:00 at CVO**

# Draft Meeting Notes

## 1. Call to order by Chairman/Secretary

## 2. Roll Call (Normal attendees; x marks attendees)

| | | |
|---|---|---|
| ( X ) Charles Cooper, Western (M) | ( X ) Ed Roman, SMUD (M) | (  ) Joe Ungvari, DOE (A) |
| (  ) Cyndi Calvillo, Western (L) | ( X ) Barry Mortimeyer, USBR (M) | (  ) Mark Clark, DOE (M) |
| (  ) Russ Klein, BART (M) | (  ) Janice Bartlett, USBR (L) | (  ) Dan Netto, USBR (A) |
| (  ) Stuart Robertson, Irrigation (M) | ( X ) Matt Foskett, NCPA (A) | ( X ) Bill Reichmann, SVP (M) |
| (  ) Tom Kabat, Palo Alto (M) | (  ) Lowell Watros, Redding (M) | ( X ) Tom Ruthford, USBR (A) |
| (  ) Martin Bauer, USBR (A) | ( X ) Mike Brozo, NCPA (M) | |

## 3. Review Prior Minutes – Minutes were approved as submitted.

## 4. Reports

A. Governance Board – Next meeting is July 31, 2001

B. Finance Committee

- Calendar Matrix Update – Reviewed to determine key action dates by T/C.

C. Other – Water/Power Optimization Workshop. The kick-off workshop was help on May 16. Several power customers attended. Reclamation water management staff presented the list of elements that are factored into the water decisions (forecasts and real-time). It was also offered to go over the spreadsheet model with power customers so that they can learn how to use it for a "tool" in their analyses of CVP power operations relative to water management. A large list of reports, decisions, plans, and other controlling documents was developed and Reclamation staff will assemble copies of such and distribute to the group before the next meeting scheduled for June 20, 2001.

D. Other – Powerformer. A report by Reclamation's Denver office should be issued soon.

E. Other – Runner Report – Reclamation handed out a report prepared by CVO staff that summarizes the condition of all turbine runners in the Region. It will be updated from time-to-time but offers a convenient reference to this important power generator component.

F. FY00 Project Status

G. Keswick Trash Rake – Procurement activity underway.

H. FY01 Project Status

- Spring Creek ACB Retrofit -Procurement activity underway.
- Spring Creek Transformer Refurbishment – Procurement activity underway. Outage planned for 10/1/01.

## 5. Accept New Action Items

**A. FY2005 Funding Program –** Western and the customers will review the existing agreement to determine what impact the Post-2004 Base Resource plan could have on funding. In addition, Western will provide their perspective. **Action Item 06/05/01-1**

**B. Water/Power Optimization Workshop –** This was added as a report in C. above until concluded.

## 6. Prioritize Action Items

## 7. Address Open Action Items:

**01/04/2000-1** Cumulative RAX Summary Spreadsheet – Ed/Tom. A meeting was set up for 6/18/01 to begin developing concepts for this summary.

**03/01/2000-3** Rapid Return to Service for Excess Capacity – Tom/Martin. In progress.

**05/01/2001-01** Obtain GB Approval to Replenish RRTS Fund –Vicki. Completed. A conference call convened on May 11, 2001, at which time the requested $200,000 funds from FY2002 was committed to replenish the temporary transfer of Spring Creek transformer funding into RRTS.

**05/01/2001-02** Change Deci-tool to Reflect Capacity Loss –Western. Continuing. Deb Deitz and Tom Kabat are concentrating on FERC 205 and bankruptcy filings by PG&E so this has not been a high priority item.

**05/01/2001-03** Accelerate New Melones Annual Maintenance – Barry. The scheduled outage for New Melones U2 was completed one week early due to RRTS funds being used. This brought much needed capacity credit online for the last week in May.

**05/01/2001-04** 100% RAX Funding Impediments -- Barry. Continuing.

**05/01/2001-05** FY2002 RAX Funding Justifications – Barry. Justifications for the FY2002 RAX items to be funded were presented (see attached). Comments are due to Barry before the July 31, 2001, Governance Board meeting at which time the projects will be proposed for acceptance by the GB. This item will remain open until final approval has been received by GB.

## 8. Future Meetings:

| | | | |
|---|---|---|---|
| Water/Power Optimization | June 20, 2001 | 10:00 a.m. | CVO |
| Governance Board Meet | July 31, 2001 | 9:00 a.m. | Western |
| Technical Committee Meet | August 17, 2001 | 9:00 a.m. | Western |
| Technical Committee Meet | October 17, 2001 | 9:00 a.m. | Redding |
| Technical Committee Meet | December 11, 2001 | 9:00 a.m. | SMUD |

## 9. Adjourn

# *RAX Justification Report*

## *Folsom & Nimbus Battery Replacement* *RAX #*

| | | | |
|---|---|---|---|
| ***FUNDED AMOUNT:*** | **$300,000** | ***BENEFIT RELIABILITY*** | ***YES*** |
| ***BENEFITS (ESTIMATE):*** | $720,000 | | |

**Description of RAX Item:** Purchase and install batteries, UPS system, battery chargers, battery racks, and add walls to make an explosion proof battery room for both Folsom and Nimbus Powerplants. Additionally, the old batteries (classified as hazardous waste) will need to be properly disposed.

**Justification:** The Direct Current (DC) system is old, antiquated and has had failed components that have jeopardized the safe and efficient operation of Folsom and Nimbus Powerplants. The UPS is presently out of service at both plants and is operating in the bypass mode meaning it is not providing battery backup power. Five of the six battery banks at the two plants have failed the IEEE load test. The station and UPS batteries are Nickel Cadmium (NiCad) batteries purchased in 1978. They are 32 years old and have a life expectancy of 25 years.

The protective relays use the DC power for reliability and cannot safely operate without the batteries. The batteries are also used for control power, emergency power, and supply power to the Uninterruptible Power Supply (UPS) for computer monitoring and control. Each plant is equipped with three stationary banks of batteries, two chargers, and a UPS. Each battery bank may need a new rack. The existing battery room is not equipped in an explosion proof room that may be required by Code. Depending on the new battery type, it may be necessary to fabricate a battery room, which meets code.

This battery replacement project is designed to replace aged or failed equipment and to restore powerplant reliability and control.

**Reliability Benefit:** Reclamation Policy is to not operate the generators if we do not have DC power necessary for control and protection. To do so would expose the generator to the high possibility of severe equipment damage should a failure occur. A failure of the DC system could cause an extensive outage if equipment were damaged. The outage could last several weeks if critical equipment had to be replaced before the plant was safe to operate. For estimating a reliability benefit, assume a 5-day outage at 120MW capacity at $50/Mwh to locate, purchase and install components during and emergency acquisition. In that scenario; a forced outage would cost $720,000.

**Other Comments:**

**Cost Estimate:**

| | | |
|---|---|---|
| Batteries | 6 at $20,000 each | $120,000 |
| UPS | 2 at $15,000 | $30,000 |
| Chargers | 4 at $15,000 | $60,000 |
| Explosion Proof Room | 2 at $15,000 | $30,000 |
| Engineering | $10,000 | $10,000 |
| Contract Admin | $7,000 | $7,000 |
| Procurement | $5,000 | $5,000 |
| Labor to Install | | $40,000 |
| | | $300,000 |

# *RAX Justification Report*

## *Trinity Unit Breakers Replacement* *RAX #*

***FUNDED AMOUNT:*** **$300,000 of $500,000** ***BENEFIT RELIABILITY*** ***YES***
***BENEFITS (ESTIMATE):*** $1,050,000

**Description of RAX Item:** Purchase and install two replacement 4000-Ampere circuit Breakers at Trinity Powerplant.

**Justification:** Trinity's 4000 Amp air blast circuit breakers are aged, worn, and are fast becoming unreliable. The existing breakers are the original Brown Boveri 13.8kV 4000-ampere air blast circuit breakers installed in 1963. The breaker is no longer being manufactured and spare parts are very difficult to obtain. Some parts have to be manufactured on site or by local merchants.

The Breakers are approaching 40 years old and exceed the life expectancy of 35 years.

**Reliability Benefit:** The power circuit breakers at Trinity are critical to the operation of Trinity Powerplant. If a breaker were to fail in service, the estimated lead-time to spec., procure and manufacture a replacement breaker would be 9 months. A similar failure occurred at Spring Creek in September 1993 and was out of service until March of 1994. The breaker is the first line of defense for isolating the generator from the system during abnormal conditions. Any failure of the breaker could not only jeopardize the breaker but has safety considerations and could also cascade to damage of the generator, transformer, or other associated equipment.

A reliability benefit is hard to calculate but if the generator was out of commission for two months, and assuming the lost generation was equivalent to losing 70 MW for 300 hours per month at $50/Mwh; a forced outage would cost $1,050,000.

**Other Comments:**

Cost Estimate:

| | | |
|---|---|---|
| Breakers | 2 @ $200,000 | $400,000 |
| Engineering | $25,000 | $25,000 |
| Contract Admin | $10,000 | $10,000 |
| Procurement | $5,000 | $5,000 |
| Labor to Install | $60,000 | $60,000 |
| | | $500,000 |

# *RAX Justification Report*

## *Shasta Spare Transformer Engineering* *RAX #*

***FUNDED AMOUNT:*** **$100,000** ***BENEFIT RELIABILITY*** ***YES***
***BENEFITS (ESTIMATE):*** $2,850,000

**Description of RAX Item:** Perform engineering to prepare the utilization of the spare Shasta 50MVA 13.8kV/230kV transformer at Trinity, Spring Creek, or Carr Powerplants.

**Justification:** Each of the transformers at Trinity, Spring Creek and Carr Powerplants has shown signs of deterioration. These transformers have exceeded their life expectancy and are showing various problems. All of these transformers are on the RAX list to be replaced but it is unclear when funding will be provided and when the transformers will be replaced. As a protective measure, Reclamation believes that the spare transformer at Shasta could be used in an emergency if one phase of the TRD transformers failed in service.

To ensure the application of the transformers, engineering must be performed to ensure compatibility, determine oil processing plan, develop a plan to physically move the transformer, ensure physical compatibility, modify protection and control circuits, and develop a commissioning and functional checkout of the new application.

Preparation of moving the transformer is estimated to save 6 weeks.

**Reliability Benefit:** If a transformer were to fail at Spring Creek, Trinity or Carr, the associated powerplant would be out of commission. Impacts at Spring Creek or Carr could impact the ability to transfer water from the Trinity River. For estimating purposes, six weeks of lost generation (with an average TRD plant generation of 500GWh/yr) would impact CVP generation by about 57,000MWh. At $50MWh, this equates to about $2,850,000.

**Other Comments:**

**Cost Estimate:**

| | | |
|---|---|---|
| Engineering | $100,000 | $100,000 |
| Contract Admin | 0 | 0 |
| Procurement | 0 | 0 |
| Labor to Install | 0 | 0 |
| | | $100,000 |

# *RAX Justification Report*

## *CVP Solid State Relays*

***RAX #***

***FUNDED AMOUNT:*** **$150,000** ***BENEFIT RELIABILITY*** ***YES***
***BENEFITS (ESTIMATE):*** $250,000

**Description of RAX Item:** Replace the existing 32 generator protective relay packages on CVP generating units with new Solid State relay packages.

**Justification**: Generator protection for most of Reclamation's generators is with Beckwith Model M-420 & M-430 relay packages. These are a windows based technology and have had a series of problems. The relays have been sent back to the factory on several occasions. The manufacturer has moved on to new technology and no longer support the Model M-420 & M-430 relays. Because of occasional malfunction, or unexplained operation and the lack of support, Reclamation engineers and technicians have considerable doubt on the relay's reliability.

**Reliability Benefit:** The reliability benefit is difficult to calculate. The relays protect multi-million dollar generators. Any failure of the relay could result in substantial damage and costs to repair. In addition, generators cannot be safely operated without protection. Therefore, if a relay fails, the generator must be taken out of service until the relay can be replaced or repaired. If over the next 5 years we lost 100 hours of generation due to relaying problems at 100MW at $50/MWh, the resultant benefit would be $250,000.

**Other Comments:**

**Cost Estimate**

| | | |
|---|---|---|
| Protective Relays | 32 relays at $4000 each $128,000 | $128,000 |
| Engineering | $10,000 | $10,000 |
| Contract Admin | $7,000 | $7,000 |
| Procurement | $5,000 | $5,000 |
| Labor to Install | Force Account (no included in price) | 0 |
| | | $150,000 |